Gender differences in the outcomes of Laparoscopic Sleeve Gastrectomy

Hadar Pinto, Uri Netz MD, Shahar Atias MD, Prof. Itzhak Avital MD, MBA, FACS and Zvi H. Perry MD, PhD ASMBS

Background

Identifying differences between genders in terms of long-term surgical results and outcomes in bariatric surgeries may be helpful for practitioners, surgeons, and patients in choosing the most appropriate surgery type and postoperative expectations and goals. Thus, there is a dire need for further evaluation of gender-specific aspects toward optimizing patient selection and reducing specific postoperative complications.

Methods:

A retrospective cohort study of patients who underwent LSG at the Department of Surgery A, Soroka University Medical Center (SUMC), Beer Sheva, Israel, from January 2014 to December 2017. We compared between genders patients' demographics, clinical history (BMI, etc.) before and after surgery, and the BAROS (Bariatric Analysis and Reporting Outcome System) score and complication rates. EMR of the patients were reviewed for demographics and post-op complications, and BAROS was answered via telephone interviews wherein patients were asked to answer the BAROS questionnaires in Hebrew, 5-8 years post-surgery.

Results:

We studied 217 patients who underwent LSG surgery, 86 of whom were males (39.6%), with an average of 5.2±0.8 years post-surgery. Demographics and baseline characteristics are presented in Table 1. Tables 2 and 3 present weight and BMI changes, health, and comorbidities by gender, respectively. Table 4 summarizes the postoperative complications and changes in comorbidities. Table 5 presents the final BAROS index (see also figure 1), which considers variances in baseline diseases and medical conditions.
There were no significant differences between the groups in minimal BMI attained, nor in the BMI on the day of interview. Males were more likely to have comorbidities such as hypertension, diabetes, dyslipidemia, and obstructive sleep apnea.

Table 1 Demographics of patients by gender

	Female *N* = 131	Male *N* = 86	*p*-value
Age in years (±SD)	45.5 (±12.7)	44.9 (±13.8)	0.41
Age at time of surgery in years (±SD)	40.3 (±12.6)	39.7 (±13.7)	0.39**
Years post-surgery (±SD)	5.28 (±0.9)	5.16 (±0.7)	0.04
Origin (%)			
Born in Israel	90 (68.7%)	72 (83.7%)	0.016*
Born abroad	41 (31.3%)	14 (16.3%)	
Religious orientation (%)			
Secular	74 (56.5%)	49 (57%)	0.777***
Traditional	45 (34.6%)	26 (30.2%)	
Religious	11 (8.4%)	9 (10.5%)	
Orthodox	0	2 (2.3%)	
Education (%)			
≤ 12	87 (66.4%)	49 (57%)	0.197
> 12	44 (33.6%)	37 (43%)	

Table 2 Evolution of comorbidities

Variable	Female *N* = 131	Male *N* = 86	*p*-value
Post-op exercise level-no (%)			
None	59 (45%)	25 (29.1%)	
Low exertion	33 (25.2%)	26 (30.2%)	0.02*
High exertion	39 (29.8%)	35 (40.7%)	
Gastroesophageal reflux status-no (%)			
Yes	78 (59.5%)	37 (43%)	0.017*
Never	53 (40.5%)	49 (57%)	
HTN status-no (%)			
Yes	19 (14.5%)	19 (22.1%)	
Only before the surgery	19 (14.5%)	14 (16.3%)	0.288*
Never	93 (71%)	53 (61.6%)	
DM status-no (%)			
Yes	8 (6.1%)	8 (9.3%)	
Only before the surgery	19 (14.5%)	19 (22.1%)	0.199*
Never	104 (79.4%)	59 (68.6%)	
OSA status-no (%)			
Yes			
Only before the surgery	2 (1.5%)	9 (10.5%)	0.008*
Never	129 (98.5%)	77 (89.5%)	
Difference in state of co-morbidities-no (%)			
Yes, improved	34 (26%)	30 (34.9%)	0.366*
Yes, worsening	8 (6.1%)	5 (5.8%)	
No change	89 (67.9%)	51 (59.3%)	

Table 3 - Long-term weight loss

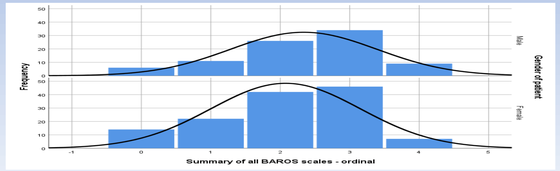
Variable	Female *N* = 131	Male *N* = 86	*p*-value
Before surgery (±SD) Av. BMI	42.26 (5.15)	44.43 (6.17)	0.68**
Ideal body weight - kg (SD)	66.44 (5.76)	77.26 (6.97)	0.18**
Excess weight – kg (SD)	34.45 (15.08)	45.12 (20.45)	0.01**
BMI on day of interview - kg/m² (SD)	29.16 (±5.37)	29.8 (±4.98)	0.16**
Lowest BMI attained - kg/m² (SD)	25.9 (±4.5)	26.35 (±4.9)	0.56**
Average decrease in BMI from surgery kg/m² (SD)	13.1 (5.9)	14.5 (6.5)	0.092**

Table 4 - Perioperative and post-operative complications

Variable	Female *N* = 131	Male *N* = 86	*p*-value*
Early post-op complications-no (%)			
None	122 (93.1%)	77 (89.5%)	
Infection	3 (2.3%)	2 (2.3%)	
Anesthesia problems	2 (1.5%)	1 (1.2%)	0.290
Leakage	0	2 2.3%)	
Hemorrhage	2 (1.5%)	4 (4.7%)	
Any post-op complications (%)			
No	118 (90.1%)	190 (87.6%)	0.165
Yes	13 (9.9%)	27 (12.4%)	
Re-operation (%)			
No	121 (92.4%)	77 (89.5)	0.357
Yes	9 (6.9%)	9 (10.5%)	

Table 5 - BAROS scores and components

Variable	Women N = 131	Men N = 86	p-value
Total BAROS score (SD)	3.93 (2.37)	4.4 (2.15)	0.42**
Composite BAROS score (%)			
Failure	14 (10.7%)	6 (7%)	0.35*
Fair or better	117 (89.3%)	80 (93%)	
Total QOL BAROS	1.16 (1.35)	1.41 (1.19)	0.14*
Composite BAROS score (%)			
Failure	14 (10.7%)	6 (7.0%)	
	22 (16.8%)	11 (12.8%)	
Fair	42 (32.1%)	26 (30.2%)	0.084***
	46 (35.1%)	34 (39.5%)	
Good	7 (5.3%)	9 (10.5%)	
Very good			
Excellent			



Discussion:

We observed no significant differences between males and females in minimal BMI attained and in BMI on the day of the interview.
Moreover, total complications rate, early post-op complication rate, need for re-operation, and BAROS complication score showed no significant difference between males and females.

Conclusions:

LSG surgical results and outcomes were similar for male and female patients as measured by the BAROS, BMI reduction, and complication rates.
Further studies focusing on LSG and comparing to other bariatric surgeries may be able to demonstrate gender-specific differences, affecting preoperative decision making. Meanwhile, LSG can be offered to the entire population regardless of gender-specific considerations.